



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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ACTION MEMORANDUM

SUBJECT: Request for a Non-Time-Critical Removal Action at Empire Canyon Site

FROM: Jim Christiansen, Remedial Project Manager
Superfund Remedial Program

THROUGH: Bert Garcia, Supervisor
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Superfund Remedial Program

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Mark Dodson for

TO: Max Dodson, Assistant Regional Administrator
Office of Ecosystems Protection & Remediation

Site ID: 08CP

Category of Removal: Non-Time Critical, PRP-Funded, PRP Lead

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of a PRP Lead non-time critical removal action (NTCRA) at the Empire Canyon Site ("the Site") in Park City, Utah. The Empire Canyon Site is located within the Upper Silver Creek Watershed, which is the subject of a stakeholder-based investigation and cleanup effort. This NTCRA is one of several actions intended to address contamination issues in the watershed. The NTCRA will be voluntarily funded and performed by United Park City Mines (UPCM). EPA and UPCM are currently negotiating an Administrative Order on Consent (AOC) for performance of the cleanup work.



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II. SITE CONDITIONS AND BACKGROUND

A. Site Description and History

The Empire Canyon Site is a historic ore mining and processing area located near Park City, Summit County, Utah. Empire Canyon is located south of Park City. The Site is situated on the eastern slope of the Wasatch Range, approximately 25 miles east of Salt Lake City. Park City rests at the downstream end of Empire Canyon.

The immediate area around the Site consists of steep canyon walls with mine/mill wastes and mine overburden present in several locations, which slope directly into the Empire Canyon drainage. The terraces or flat spots in the canyon are the locations of former mining facilities and a municipal drinking water tank. There were several mines, a concentrator, assay office, trams and other mine workings in the canyon up to the drainage divide.

Waste rock piles from the mine operations are located along the canyon walls as well as in the Empire channel. Several worn trails parallel the channel and traverse the mill and mine sites. The canyon is a popular area for residents and visitors to hike and mountain bike. The Empire Canyon drainage originates approximately one mile to the south near the Summit/Wasatch County line. Flow originating in the canyon occurs in a small ephemeral channel. This water forms the headwaters of Silver Creek, which is a tributary of the Weber River.

Empire Canyon is situated between, and within, the Deer Valley and Park City Ski Resorts.

1. Removal site evaluation

The Empire Canyon Site was initially investigated in 1996. The Utah Department of Environmental Quality (UDEQ) conducted a Preliminary Assessment (PA) of the Site and prepared a work plan for a subsequent Site Inspection (SI). The PA noted that mine waste and elevated levels of heavy metals were present at the Site and that additional investigation was warranted. The SI was not immediately completed.

In 1999, EPA and other stakeholders, under the name of the Upper Silver Creek Watershed Stakeholder's Group (USCWSG), began a collaborative watershed investigation in the Park City area. At that time, six sites in the area were already listed on CERCLIS, including the Empire Canyon Site, and a holistic, watershed approach was deemed necessary. The intent was to investigate and address collective impacts from historic mining in the Park City area. One significant environmental impact was the listing of Silver Creek on the Clean Water Act Section 303(d) list of impaired water bodies due to elevated levels of zinc and cadmium. As part of this effort, the Stakeholder's Group conducted water and

sediment sampling in Silver Creek to pinpoint significant sources of loading. This work showed that Empire Canyon was a significant source of metals to Silver Creek and that more detailed investigation was required in the area. It was also known that there was significant recreational use of the Empire Canyon area.

Subsequent to this report, UDEQ conducted an Expanded Site Inspection (ESI). The ESI investigated the Empire Canyon Site in detail and showed which areas of the canyon were of concern. Based upon the PA, ESI, and watershed investigations, EPA determined that a non-time critical removal action would be appropriate for Empire Canyon, primarily to address impacts to surface water. An Engineering Evaluation/Cost Analysis (EE/CA) Approval Memo was signed in early 2002. This approval memorandum documented that the use of removal authority was appropriate for Empire Canyon. United Park City Mines voluntarily entered into an AOC with EPA to conduct an EE/CA for the Site on May 14, 2002. The EE/CA was completed on June 10, 2003 and will be deemed completed upon signing of this Action Memorandum.

2. Site Characteristics

A detailed description of Site characteristics is presented in the EE/CA.

3. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant.

As stated previously, several historic mining operations existed in the Empire Canyon drainage. Waste rock and tailings from these operations were deposited at various locations in the canyon. Sampling has shown the waste rock and tailings contain elevated levels of several heavy metals, including lead, arsenic, zinc, and cadmium. Sampling of surface waters, sediments, and soils in and below Empire Canyon have shown that heavy metals have been released from mine waste to surface water, ground water, and soils.

4. National Priority List (NPL) Status

Empire Canyon is not listed on the NPL. EPA currently does not anticipate listing the Site on the NPL.

B. Other Actions to Date

In addition to past investigations described above, numerous other environmentally-based actions have occurred in the Empire Canyon area. Several are described below:

- Flagstaff Exclusion area.

UPCM is currently in the process of developing several parcels of land in and near Empire Canyon, herein referred to as the Flagstaff Development. The Flagstaff Development will include several residential properties. To determine if there were any mining impacts in this area, UPCM, in conjunction with EPA, UDEQ, and the USCWSG, conducted detailed sampling of the Flagstaff Development. This sampling showed that mine waste and heavy metals were present in very limited areas within the development area, but that most areas were free from impacts. Further, investigations showed that this area had little or no impact to surface water in Empire Canyon. UPCM prepared detailed sampling reports for UDEQ and EPA, and based upon this information, EPA specifically excluded this area from the boundaries of the Empire Canyon Site and issued UPCM comfort letters for the development area. The EE/CA, AOCs, and this Action Memorandum specifically exclude this area from the Empire Canyon Site. Any environmental issues present in this area were, or are, being handled voluntarily by UPCM in conjunction with the USCWSG.

- Judge Tunnel.

The Judge Tunnel is a drain tunnel which underlies much of Empire Canyon. It is part of an interconnected system of tunnels, shafts, and other underground mine features that are present in the mountains above Park City. Much, if not most, of the water that infiltrates into the ground in Empire Canyon may enter the Judge Tunnel system, where it eventually is discharged in the lower reaches of the canyon. Park City Municipal Corporation (PCMC) collects this water and uses it for drinking water. There have been numerous investigations related to Judge Tunnel, evaluating all aspects of its use as drinking water. Based upon these investigations, PCMC has already taken several steps to ensure the safety of the water, and other steps are currently being planned or considered. These steps include construction of a water treatment plant and obtaining a Utah Pollutant Discharge Elimination System (UPDES) permit for any water discharged to Silver Creek. Because of this separate, but coordinated, effort for Judge Tunnel, EPA sees no need for intensive investigations into deep ground water impacts in Empire Canyon.

- Previous cleanups by UPCM.

For various reasons, UPCM has voluntarily addressed several areas of mine waste in the Empire Canyon drainage. This work includes reshaping and recontouring of mine dumps, consolidation of some contaminated soils and mine waste into larger mine dumps, and rerouting of surface water. This work was coordinated with EPA.

- Residential impacts in lower Empire Canyon.

As part of the ESI, UDEQ collected samples from private residences located in

the lower portions of Empire Canyon. The purpose of the samples was to determine if residential soils were impacted by contamination that may have originated from former mining operations in Empire Canyon. The samples showed that there were impacts to soils at the properties, specifically elevated levels of lead and arsenic. However, because there are likely several areas of Park City that have elevated levels of heavy metals in soils, and because it is difficult to determine which of many potential sources caused impacts at any particular property, EPA has chosen to address residential soil impacts collectively as part of the USCWSG work. Thus, while it is possible that the residential soil impacts in lower Empire Canyon are the result of sources within the Empire Canyon Site, these impacts are not addressed in this Action Memo and will be addressed through other investigations and actions.

C. State and Local Authorities Roles

The UDEQ was very involved in the USCWSG and in the investigation of Empire Canyon. UDEQ was the lead agency for the PA and ESI. UDEQ was involved in the oversight of the EE/CA sampling and will also be involved in the performance of the alternative selected in this Action Memorandum through a direct agreement with UPCM. Representatives of Park City and Summit County are members of the USCWSG and were very involved in the investigations and decision making for the Site.

III. THREATS TO PUBLIC HEALTH OR WELFARE, THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Site present an imminent and substantial endangerment to human health and meet the criteria for initiating a Removal Action under 40 C.F.R. Section 300.415(b)(2) of the National Contingency Plan (NCP). The following factors from Section 300.415(b)(2) of the NCP form the basis for EPA's determination of the threat presented and the appropriate action to be taken:

- i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

Heavy metals, particularly zinc and cadmium, migrate from mine waste in Empire Canyon into Silver Creek. These metals are present in both water and sediment at concentrations that may impact both fish and the aquatic food chain and contribute to exceedances of water quality standards in Silver Creek.

- (ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems.

Flow from Empire Canyon enters Silver Creek, which feeds several wetlands at lower elevations. Wetlands are considered an extremely sensitive and vital ecosystem.

(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.

Mine waste is present at multiple surface locations in Empire Canyon, including in areas that are frequently in contact with surface water and snowmelt. Sampling has shown that heavy metals are leached from the mine waste and migrate into flowing surface waters. Sediments are also impacted and may migrate during heavy runoff or storm events.

IV. ENDANGERMENT DETERMINATION

The actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment. Contaminants are verified to be present at levels which present unacceptable risk to the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Action

1. Objectives and Scope

The primary objective of the removal action is to significantly reduce heavy metal loading to surface water from sources in Empire Canyon. This load reduction will be achieved through isolation of surface water from mine wastes in Empire Canyon through a variety of mechanisms. The secondary objective of the removal action is to minimize the potential for human exposure to elevated lead and arsenic concentrations in soils within the Empire Canyon Site. This objective will be achieved through consolidating and covering select areas of mine waste and through surface reclamation.

2. Primary proposed action

Mine waste in areas identified as adversely impacting surface water will be excavated. The channels will be reconstructed using clean rip-rap material and/or culverts. Some segments of the channels may also be lined with a clay liner to keep water on the surface. Several recreational trails in contact with contaminated soils or mine waste may be covered, and some areas of trails may also be rerouted. The Daly West mine dump will be re-contoured and covered with clean material. In certain areas, surface water flow in the vicinity of the Daly West mine dump will be re-routed to minimize contact with waste rock. A cut-off ditch will be constructed on the up-gradient side of the dump. Surface water from the Empire, Daly Draw and Walker Webster channels will be directed into an underground culvert and isolated from waste rock.

Mine waste removed from channels and trails will be consolidated in one or more locations in Empire Canyon and managed on-site. The preferred location is the Daly West Dump, which is currently being evaluated for suitability. Other locations will be considered as necessary. If waste is moved off-site for disposal, actions will comply with the Off-Site Rule.

Approximately 4,500 linear feet of channel will be remediated in lower Empire Canyon. Approximately 2,500 feet of recreational trail may be remediated throughout Empire Canyon. In addition, remedial activities will be conducted in areas containing significant amounts of impacted waste rock (e.g., Alliance mine dump and Daly West). These areas will be regraded and capped with clean material. The Site will be monitored for five years to ensure that the remediation is effective in improving the environmental quality of the Site. Institutional controls will be implemented as required for the protection of Site workers and recreational users.

A Post-Removal Site Control Plan, as required in the AOC, will set forth long-term management plans and responsibilities for Empire Canyon once the removal action is complete.

3. Contingency Actions

There are no contingency actions identified for the Site.

4. Funding Limitations

There are no known funding limitations restricting response actions for the Site. However, response actions may be phased over multiple construction seasons.

5. EE/CA.

An EE/CA was prepared by UPCM for this removal. A public comment period on the recommended alternative was held from July 23, 2003 to August 21, 2003. A public meeting was held on August 19, 2003. Park City Municipal Corporation offered several comments and concerns which have been addressed or will be addressed during development of the removal work plan. No other adverse comments were received. The preferred alternative of the EE/CA is the response action recommended in this Action Memorandum. The EE/CA is part of the Administrative Record for the Site.

6. ARARs

This removal action will attain, to the extent practicable, Federal and/or State ARARs, whichever is more stringent. A list of ARARs is included in Appendix A.

7. Project Schedule.

Some preliminary work has already been completed. Work specified in this Action Memorandum is expected to begin during spring 2004, contingent upon execution of an AOC, and is expected to last approximately two construction seasons.

B. Estimated Costs

The response action is estimated to cost approximately \$1,200,000.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If no removal action is taken or if the action is delayed, loading of heavy metals during spring runoff will continue. It is important to address Empire Canyon immediately, as it forms the headwaters of Silver Creek. Cleanups in lower portions of the watershed cannot commence until contamination in upper portions, such as Empire Canyon, is addressed and the potential for recontamination is removed. It is likely that water quality standards in Silver Creek will not be attained through remediation of Empire Canyon alone, but it is also likely that water quality standards cannot be attained consistently unless and until Empire Canyon is remediated.

VII. OUTSTANDING POLICY ISSUES

There are no known outstanding policy issues regarding this removal action.

VIII. ENFORCEMENT

An enforcement confidential summary is included as Appendix B.

IX. RECOMMENDATION

This decision document represents the selected Removal Action for the Empire Canyon Site, Park City, Utah and was developed in accordance with CERCLA, as amended, and is consistent with the NCP. This decision is based on the Administrative Record for the Site.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal and I recommend your approval of the proposed PRP-lead Removal Action.

Approve: Max H. Dodson
Max H. Dodson
Assistant Regional Administrator
Office of Ecosystems Protections and Remediation

Date: NOV - 6 2003

Disapprove: _____
Max H. Dodson
Assistant Regional Administrator
Office of Ecosystems Protections and Remediation

Date: _____

Attachments: Appendix A - List of ARARs
Appendix B - Enforcement Summary (Confidential)

Appendix A
Applicable or Relevant and Appropriate Requirements (ARARs)
Empire Canyon Site Non-Time Critical Removal Action

Requirement	Citation	Description/Prerequisite Determination	Comment	
Chemical Specific ARARs				
Definitions and General Requirements of Utah Water Quality Act	UAC R317-1	Provides definitions and general requirements for waste discharges to waters of the State of Utah.	Relevant and Appropriate	No known point source discharges at Site, but certain discharges or water courses will be considered. Flow is ephemeral and present only for a few months per year.
Utah Surface Water Quality Standards	UAC R317-2-6 UAC R317-2-13 UAC R317-2-14	Establishes use designations for Silver Creek and headwaters (as tributary to Weber River).	Relevant and Appropriate	No known point source discharges at Site, but certain discharges or water courses will be considered. Flow at site is ephemeral and present only for a few months per year.
National Ambient Air Quality Standards	40 CFR Part 50	Establishes ambient air quality standards for certain criteria pollutants to protect public health and welfare.	Relevant and Appropriate	Emissions associated with proposed removal action will not constitute a major source. Attainment and maintenance of NAAQS pursuant to new source review are not applicable. However, standards relating to lead are relevant and appropriate.
Resource Conservation and Recovery Act (RCRA) Subtitle C	40 CFR Part 264	Provides regulation of hazardous waste.	Relevant and Appropriate	Although Subtitle C is not generally applicable to mining related wastes, may be relevant and appropriate if excavated soils are disposed of off-site and fail EPA's Toxicity Characteristic Leachability Procedure.

Appendix
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Requirement	Citation	Description/Prerequisite Determination	Comment	
Action Specific ARARs				
Air Emissions; Fugitive Emissions and Fugitive Dust	UAC R307-205-2 UAC R307-205-3 UAC R307-205-5 UAC R307-205-6	Construction and demolition activities, roads and aggregate materials must be managed to minimize fugitive dust. Applies to all activities that generate fugitive dust.	Applicable	UPCM will implement best management practices to address dust control at the Site.
Utah Storm Water Rules	UAC R317-8-3.9	Establishes state storm water requirements.	Applicable	UPCM will implement best management practices to address storm water management at Site.
General Earthwork & Construction	UAC R315-8-2.10	Establishes requirements for a constructions QA program to ensure that constructed units meet or exceed design criteria.	Relevant and Appropriate for repositories including Bevill exempt waste	UPCM will implement the construction QA program during the removal action.
General Earthwork & Construction	UAC R307-102-1	Emission of air contamination in sufficient quantities is prohibited.	Applicable	
Remediation and Repository Closure	UAC R311-211-6	Provides cleanup standards evaluation criteria for corrective actions at CERCLA sites within Utah.	Relevant and appropriate	Will be used for removal and disposal of CERCLA hazardous substances in receiving facilities
Solid Waste Treatment and Disposal	UAC R312-301-6	Applies to solid waste disposal.	Relevant and appropriate	Appropriate for on-site repositories

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Requirement	Citation	Description/Prerequisite	Determination	Comment
Solid Waste Facility Location Standards	UAC R315-302	Applies to disposal of solid waste in landfills, land treatment disposal sites, and piles.	Applicable	Applies to on-site repositories
Discharge to Surface Water	40 CFR § 122.26(b)(14)	Construction activities that disturb five or more acres. Requires preparation of stormwater pollution prevention plan.	Applicable	
Off-Site Management of CERCLA Wastes (Off-Site Rule)	40 CFR §300/440	Applies to any CERCLA action involving off-site transfer of any hazardous substance or pollutant and contaminant. EPA Regional Office will determine suitability of off-site facility.	Applicable	Applicable only if material is moved off-site.
Location Specific ARARs				
Protection of Wetlands	33 USC §1344 and 40 CFR Part 230 and Executive Order 11990	Prohibits discharge of dredged or fill materials into waters of the U.S.	Applicable	Potentially applicable depending on work. Measures will be developed to avoid, restore, or mitigate impacts to wetlands, if any.
Historic Sites, Building, and Antiquities Act	16 USC §§461-467	Requires protection of landmarks list on National Registry.	Applicable	No expected impacts.

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Requirement	Citation	Description/Prerequisite	Determination	Comment
National Historic Preservation Act	16 USC §470	Requires protection of district, site, building, structure, or object eligible for inclusion of national register of historic places.	Applicable	No expected impacts.
Archeological and Historic Preservation Act	16 USC §469	Requires preservation of significant historical and archeological data.	Applicable	No expected impacts.
Fish and Wildlife Coordination Act	16 USC §1531 et seq	Requires that actions taken in areas that may affect streams and rivers be undertaken in a manner that protects fish and wildlife.	Applicable	Actions will improve Silver Creek; no fish habitat in Empire Canyon; USFWS consulted
Endangered Species Act	16 USC §1531 and 50 CFR Part 200 and 402	Requires protection of endangered and threatened species.	Applicable	USFWS has been consulted regarding such species
Migratory Bird Treaty Act	16 USC §703 et seq	Requires protection of migratory non-game birds.	Applicable	USFWS has been consulted regarding such birds
Floodplain Management	Executive Order No. 11988	Pertains to floodplain management and construction requirements in such areas.	Applicable	Applicable to soil removed or repositories located within floodplain.

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Requirement	Citation	Description/Prerequisite	Determination	Comment
Resource Conservation and Recovery Act (RCRA) Subtitle D	40 CFR Part 257	Facilities where treatment, storage, or disposal of solid waste will be conducted considering certain location standards which include restrictions on proximity to airports, floodplains, wetlands, fault areas, scenic impact zones, and unstable areas.	Applicable	Any on-site repository or to any existing off-site facility that receives CERCLA hazardous substances.

Appendix B (Confidential)

ENFORCEMENT SUMMARY

While no formal PRP search was conducted by EPA, UPCM is the landowner of the Site and may be responsible for conducting former mining operations in Empire Canyon. UPCM elected to voluntarily enter an AOC to conduct the EE/CA for the Site, and negotiations are underway with UPCM to conduct the cleanup. No other PRPs have been identified for the Site.

Kate Tute
RELEASED
12/22/03